

Docket No.: M1103.70230US00
(PATENT)

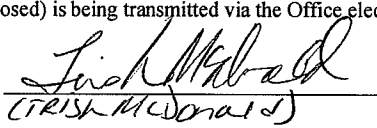
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Vivek Bhanu et al.
Serial No.: 10/724,843
Confirmation No.: 2170
Filed: December 1, 2003
For: SMART SCAN FOR BLUETOOTH PAN DEVICES
Examiner: L. Liu
Art Unit: 2145

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Dated: 10-14-2008

Signature: 
(TRISH McDONALD)

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Brief is filed in furtherance of a Notice of Appeal filed on June 11, 2008.

The fees required under § 41.20(b)(2) and fees for an extension of time are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

I. REAL PARTY IN INTEREST

The real party in interest for this appeal is:

Microsoft Corporation

II. RELATED APPEALS, INTERFERENCES, AND JUDICIAL PROCEEDINGS

There are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 21 claims pending in the application.

B. Current Status of Claims

1. Claims canceled: none
2. Claims withdrawn from consideration but not canceled: None
3. Claims pending: 1-21
4. Claims allowed: None
5. Claims rejected: 1-21

C. Claims On Appeal

The claims on appeal are claims 1-21.

IV. STATUS OF AMENDMENTS

Applicant filed an Amendment After Final Rejection on March 11, 2008. That amendment and all other amendments submitted have been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present application relates to an autoconfiguration service for a computer equipped to support wireless networking, particularly wireless networking using an ad hoc network, such as Bluetooth®. When an application on the computer desires a network connection, the autoconfiguration service can automatically establish that connection (page 2, lines 20-22).

To connect to a network, the autoconfiguration service discovers “visible” devices with which it can connect. Once visible devices are identified, the autoconfiguration service determines whether any of those visible devices is a preferred device, and, if a preferred device is identified, automatically initiates a network connection to the visible, preferred device (page 2, lines 15-22; page 3, lines 7-13; page 11, lines 14-16).

To account for movement of the computer or other devices in the vicinity of the computer, the autoconfiguration service periodically requests that the list of visible devices be updated. This is described as “polling” for the list of visible devices (page 4, lines 17-19), which may occur relatively frequently, such as every 90 seconds (page 11, line 3).

The independent claims relate to the manner in which the list of visible devices is formed. Each of the four independent claims recites a page scan cache and an inquiry scan cache that can store indications of devices (page 13, lines 2-3). Information from both of these caches is used in forming the list of visible devices. The application describes that a page scan is performed for each device identified by an entry in the page scan cache. If the page scan is successful for a device, that device is included in the list of visible devices. The devices identified by entries in the inquiry scan cache are also included in the list of visible devices (page 13, lines 14-17).

The application also describes approaches used in maintaining these caches. The inquiry scan cache is refreshed periodically by performing an inquiry scan. The period with which the inquiry scan cache is refreshed can be relatively long, such as once every 5 minutes (page 13, lines 8-11). Between these scans, if a remote device attempts to connect to the computer, an entry may also be added to the inquiry scan cache to identify that remote device (page 14, lines 15-16).

The page scan cache is refreshed by adding an entry to the cache when an attempt is made to connect to a device (page 13, lines 3-5). Additionally, the application describes a cache expiration policy for removing entries from the page scan cache. As a specific example, the application describes that a cache entry identifying a device may be given a 30 minute expiration time when an attempt is made to connect to that device. Each time an inquiry scan is performed, if that device is not detected in the scan, the expiration time is reduced, until the expiration time is eventually reduced to zero and the entry is removed from the page scan cache (page 14, lines 8-14).

The net result of maintaining two caches is that a list of visible devices can be formed efficiently, which is beneficial given the frequency with which the autoconfiguration service may poll for the list.

A.) Independent Claim 1

Claim 1 recites an inquiry scan cache and a page scan cache (page 13, lines 2-3). The inquiry scan cache is refreshed periodically and a page scan cache is refreshed by way of an attempt to connect to at least one remote device (page 13, lines 8-11). The claim further recites a list of visible remote devices comprising entries in the inquiry scan cache, concatenated with each entry in the page scan cache that the local device successfully contacts by way of a page scan (page 13, lines 14-17).

B.) Independent Claim 7

Claim 7 recites an inquiry scan cache and a page scan cache (page 13, lines 2-3). The inquiry scan cache is updated by way of a periodic inquiry scan and the page scan cache updated

with a corresponding entry in response to an attempt to connect to a remote device (page 13, lines 8-11). The claim recites that these caches are updated prior to a request for a list of visible remote devices. In response to a request for the list, the list of visible remote devices is formed by combining at least a portion of the page scan cache with the inquiry scan cache (page 13, lines 14-17).

C.) Independent Claim 14

Independent claim 14 recites an inquiry scan cache and a page scan cache (page 13, lines 2-3). The inquiry scan cache is updated by way of a periodic inquiry scan and the page scan cache is updated with a corresponding entry in response to an attempt is made to connect to the remote Bluetooth device (page 13, lines 8-11). A list of visible remote Bluetooth devices is formed to include a combination of entries from the inquiry scan cache and the page scan cache (page 13, lines 14-17).

D.) Independent Claim 18

Claim 18 recites an inquiry scan cache and a page scan cache (page 13, lines 2-3). The inquiry scan cache is refreshed by an attempt to connect to a local Bluetooth device by a remote Bluetooth device (page 14, lines 15-16). The page scan cache is refreshed by way of an attempt to connect to the remote Bluetooth device (page 13, lines 8-11). A list of visible remote Bluetooth devices comprises entries in the inquiry scan cache, concatenated with each entry in the page scan cache that the local Bluetooth device successfully contacts by way of a page scan (page 13, lines 14-17).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether independent claim 1, and claims 2 and 3 (which depend from claim 1), claim 8 (which depends from claim 7) and claim 15 (which depends from claim 14) are properly rejected under 35 U.S.C. 103(a) over Rune (publications no. US 2003/0060222 A1), Melpignano (U.S. 7,193,989 B2) and Virtanen (publications no. US 2003/0124978 A1).

Whether independent claim 7 and claims 11 and 12 (which depend from claim 7) are properly rejected under 35 U.S.C. 103(a) over Rune (publications no. US 2003/0060222 A1), Melpignano (U.S. 7,193,989 B2) and Virtanen (publications no. US 2003/0124978 A1).

Whether independent claim 14 is properly rejected under 35 U.S.C. 103(a) over Rune (publications no. US 2003/0060222 A1), Melpignano (U.S. 7,193,989 B2) and Virtanen (publications no. US 2003/0124978 A1).

Whether independent claim 18 and claims 19-21 (which depend from claim 18) are properly rejected under 35 U.S.C. 103(a) over Rune (publications no. US 2003/0060222 A1), Melpignano (U.S. 7,193,989 B2) and Virtanen (publications no. US 2003/0124978 A1).

Whether dependent claim 4 is properly rejected under 35 U.S.C. 103(a) over Rune (publications no. US 2003/0060222 A1), Melpignano (U.S. 7,193,989 B2) and Virtanen (publications no. US 2003/0124978 A1).

Whether dependent claim 5 is properly rejected under 35 U.S.C. 103(a) over Rune (publications no. US 2003/0060222 A1), Melpignano (U.S. 7,193,989 B2) and Virtanen (publications no. US 2003/0124978 A1).

Whether dependent claims 6, 10 and 17 are properly rejected under 35 U.S.C. 103(a) over Rune (publications no. US 2003/0060222 A1), Melpignano (U.S. 7,193,989 B2) and Virtanen (publications no. US 2003/0124978 A1).

Whether dependent claims 9 and 16 are properly rejected under 35 U.S.C. 103(a) over Rune (publications no. US 2003/0060222 A1), Melpignano (U.S. 7,193,989 B2) and Virtanen (publications no. US 2003/0124978 A1).

Whether dependent claim 13 is properly rejected under 35 U.S.C. 103(a) over Rune (publications no. US 2003/0060222 A1), Melpignano (U.S. 7,193,989 B2) and Virtanen (publications no. US 2003/0124978 A1).

Arguments for reversal for each of the above identified grounds for review are presented separately below. Accordingly, claims 1, 4, 5, 6, 7, 9, 13, 14, and 18 do not stand or fall together.

VII. ARGUMENT

Appellant respectfully requests that the Examiner's final rejection of all the claims be reversed.

A. Prior Art Cited

As the claims are grouped, the same combination of three references is applied against the claims in each group. These references are Rune (publications no. US 2003/0060222 A1), Melpignano (U.S. 7,193,989 B2) and Virtanen (publications no. US 2003/0124978 A1). However, these references, whether considered alone or in combination, do not describe an approach to forming or using a list of visible devices as described in the present application.

Nonetheless, Rune is cited to teach an inquiry scan and a page scan. Rune does describe a device configured to operate according to the Bluetooth® standard (*see, e.g.* [0001]). However, the Examiner acknowledges that Rune does NOT expressly describe:

- an inquiry scan cache
- a page scan cache
- refreshing a page scan cache by way of an attempt to connect to at least one remote device
- a list of visible remote devices comprising entries in the inquiry scan cache concatenated with each entry in the page scan cache that the local device successfully contacts by way of a page scan.

Rather, the Examiner asserts an inquiry scan cache and a page scan cache are inherent in an inquiry scan transceiver and a page scan transceiver, respectively (see Office Action mailed December 11, 2007, ¶4). For the other features not taught by Rune, the Examiner refers to Melpignano and Virtanen.

As to refreshing a page scan cache by contacting other devices, the Examiner cites Melpignano. Melpignano does describe paging for Bluetooth® devices. However, rather than describing a page scan cache, the reference relates primarily to a modification of the Bluetooth® standard to increase the speed at which a device can be paged (col. 10, lines 36-41). Specifically, for two devices that have had prior communications, different frequency trains than in the Bluetooth® standard are used in paging mode (col. 4, lines 31-36). Though the Examiner cites col. 10, lines 45-63 as teaching refreshing a page scan cache, that passage simply provides an example of improved performance touted by Melpignano when using his frequency trains.

As to forming a list of visible remote devices comprising entries in the inquiry scan cache concatenated with each entry in the page scan cache that the local device successfully contacts by way of a page scan, the Examiner cites Virtanen. However, Virtanen does not describe such an approach to forming a list. Rather, Virtanen describes a list of devices formed only through an inquiry [0004], and a problem that can arise when names for these devices are displayed. As described in Virtanen, though devices respond to the inquiry with a unique address, they also respond with a name that is intended to be more user friendly [0004]. Virtanen asserts that such names, though intended to be helpful to a user in identifying devices, often are not helpful because many devices in an ad hoc network have similar names. Accordingly, when a user goes to select a device with which to connect, the user may select the wrong device [0005, 0009].

Virtanen describes a solution to this problem [0006]. As described in Virtanen, the solution involves storing in a local device a telephone directory of electronic business cards that have the relatively unique Bluetooth® addresses of remote devices [0008, 0026]. The local device, upon receiving responses from the inquiry, can substitute identifying information from the telephone

directory for information received from the remote device to better identify devices that responded to the inquiry.

Nonetheless, the Examiner cites various passages of Virtanen as allegedly teaching forming a list of visible remote devices comprising entries in the inquiry scan cache concatenated with each entry in the page scan cache that the local device successfully contacts by way of a page scan. Specifically, the Examiner cites FIG. 2 and paragraphs [0020-21], which describe this figure. However, this figure is a state diagram showing basic states of a Bluetooth link as a connection is established [0012]. The Examiner also cites FIG. 4, but that figure is a flowchart illustrating adding a Bluetooth address to the telephone directory [0014]. As illustrated, after a connection is established to a remote device, the Bluetooth® address of the device may be used to create a new card in the telephone directory (414), linked to an existing name or no action may be taken (412). Additionally, the Examiner cites FIG. 5 and paragraphs [0032-33], which describe that figure. However, these portions of the reference picture and describe displaying a list of devices found in an inquiry by substituting names from the directory for names obtained from the devices during the inquiry.

B. Rejection under 35 U.S.C. 103(a) over Rune (publications no. US 2003/0060222 A1), Melpignano (U.S. 7,193,989 B2) and Virtanen (publications no. US 2003/0124978 A1)

Though Applicants argue the claims separately below, all of the independent claims are rejected based on the same combination of three references using the same reasoning (see, Office Action dated December 11, 2007, pp. 5-6). Therefore, prior to arguing the claims separately, Applicants present arguments applicable against all of the rejections. As detailed in the following sections, the combination of references fails to make a *prima facie* case of obviousness for at least two reasons, either one of which requires reversal of the rejections. First, none of the references describes a page scan cache. Thus, even if the references were combined as asserted by the Examiner, the combination would not meet all limitations of any of the claims. Second, one of skill

in the art would have had no reason to combine the references.

1. None of the Cited References Shows a Page Scan Cache As Claimed

The rejections are all premised on interpretations of Rune and Melpignano that are unsupported by the references and therefore in error. Because all of the claims are rejected based on this error, the rejections should be reversed.

The Examiner asserts that Rune teaches a page scan cache because such a cache is inherent in the page scan transceiver described in Rune. However, there is no basis for this assertion. As described in Rune, the page scan transceiver focuses only on performing tasks associated with a page scan [0030]. The page scan transceiver is responsible for establishing a connection with a roaming unit identified by the inquiry scan transceiver [0033]. After the connection is established, the page scan transceiver hands over the connection [0034]. Contrary to the Examiner's unsupported assertion, the described operations do not require that the page scan transceiver maintain a cache and it is an error to interpret the Rune as inherently disclosing such a cache.

This error is compounded with the assertion that Melpignano describes refreshing the page scan cache by way of an attempt to connect to at least one remote device. Because no page scan cache is disclosed in any of the references, it follows that refreshing the page scan cache is also not disclosed – regardless of the mechanism used to refresh the cache. Though the Examiner asserts that limitations relating to refreshing the page scan cache are met by Melpignano at col. 10, lines 45-63, that passage at most teaches that a page scan is performed. It does not follow that results of such a page scan are stored in a cache or that the cache is subsequently refreshed by way of an attempt to connect to a remote device.

The Examiner's interpretation of the reference to the contrary is unsupported and an error for which the rejections of all the claims should be reversed.

2. The Combination of References is Not Proper

The rejections are all premised on an inadequate reason for combining disparate references. The Office Action mailed December 11, 2007 (page 4) asserts that Virtanen is in the “same field of endeavor” as Rune and Melpignano and that it would have been obvious to combine the references. Being in the same field of endeavor is not an adequate reason for combining bits and pieces of different systems described in different references. As made clear by M.P.E.P. §2143(F), references being in the same field of endeavor is just the starting point of a rejection. For a proper rejection, a finding that the references are in the same field must be coupled with a design incentive or market force that would have prompted the combination of those references. No such incentive or market force have been identified by the Examiner.

In fact, no such incentive or market force exists. The elements of Virtanen that are the basis of the rejection relate to the external display of a list of devices in a user perceptible form based on information in a telephone directory. The rejection draws from Rune and Melpignano elements that are internal to a page scan or inquiry scan transceiver. There is no logical reason that one of skill in the art would have modified these internal elements of Rune and Melpignano to use external display information from the telephone directory of Virtanen. Accordingly, a rejection premised on this combination is in error and should be reversed.

The asserted reason for combining Rune and Melpignano is also flawed. Though the Office Action asserts that Melpignano motivates one of skill in the art to combine the references in order to establish one or more connections as quickly as possible, citing col. 10, lines 60-63 (Office Action mailed December 11, 2007, page 3), this reasoning takes a few lines out of context. As is apparent from the full paragraph from which this quote is taken (col. 10, lines 45-63), one of skill in the art would have understood the cited passage to teach the benefits of using Melpignano’s non-standard frequency trains. The cited passage cannot reasonably be interpreted as teaching any benefits of refreshing a page scan cache as asserted by the Examiner (even if refreshing a cache were mentioned in Melpignano, which it is not). Thus, there is no valid reason for combining Rune and Melpignano. Accordingly, a rejection premised on this combination is in error and should be reversed.

3. Claims 1, 2, 3, 8, and 15

The rejection of claim 1 should be reversed because independent claim 1 recites at least two limitations not met by the combination of references. First, the claim recites “a page scan cache that is refreshed by way of an attempt to connect to at least one remote device.” The claim further recites “a list of visible remote devices comprising entries in the inquiry scan cache, concatenated with each entry in the page scan cache that the local device successfully contacts by way of a page scan.” Neither of these limitations is met by the combination of Rune, Melpignano and Virtanen.

As described in subsection 1 above, none of the references describes a page scan cache. Further, none of the cited references describes a page scan cache “that is refreshed by way of an attempt to connect to at least one remote device.” Though the Examiner asserts that Rune teaches such a cache and that Melpignano teaches refreshing the cache by way of an attempt to connect to at least one remote device, as detailed in subsection 1, those references provide no such teaching. Accordingly, even if Rune, Melpignano and Virtanen were combined, the combination would not meet this limitation of claim 1.

Further, the references, whether considered alone or in combination, do not describe “a list of visible remote devices comprising entries in the inquiry scan cache, concatenated with each entry in the page scan cache that the local device successfully contacts by way of a page scan.” Though the Examiner appears to assert that this limitation is met by using a name from a telephone directory as described in Virtanen, that interpretation of the references is not proper.

First, this interpretation results in an inconsistent interpretation of the same elements in different clauses in the claim. Such an interpretation is not reasonable and is therefore improper. In order to match other limitations of the claim to the references, the Examiner asserts that the claimed “page scan cache that is refreshed by way of an attempt to connect to at least one remote device” is an internal component of the page scan transceiver of Rune that is refreshed as in Melpignano (Office Action of December 11, 2007, page 3). To meet the last limitation of the claim, the

Examiner switches positions and treats the page scan cache as the telephone directory of Virtanen. Though this inconsistency involves only a subtle switch in wording, it introduces a reversible error into the analysis because it side steps the need to demonstrate that the claimed combination existed in the prior art. In particular, it avoids the need to demonstrate that in the prior art the cache used in forming a list of visible devices as recited in the later claim elements is the same cache “refreshed by way of an attempt to connect to at least one remote device,” as recited in the earlier claim elements. In fact, because of the inconsistency, the rejection contains no such showing and therefore should be reversed.

A second flaw in the application of Virtanen is that the telephone directory of Virtanen is not used to form a list as claimed. The claim recites: “a list of visible remote devices comprising entries in the inquiry scan cache, concatenated with each entry in the page scan cache that the local device successfully contacts by way of a page scan.” Yet, it is apparent from a comparison of Figures 5A and 5B of Virtanen that the telephone directory of Virtanen is used to substitute names identifying devices on a list. The list is not augmented or otherwise changed -- the list contains the same devices both before and after the name substitution. Thus, it is unreasonable to say that the list includes “entries in the inquiry scan cache, concatenated with each entry in the page scan cache....” In short, the reference shows no concatenation, as claimed.

Additionally, there is no indication in Virtanen of an attempt made to contact entries in the telephone directory by way of a page scan. Thus, there is no basis to assert that the combination of references meets the limitation that recites “...each entry in the page scan cache that the local device successfully contacts by way of a page scan,” as claimed.

As an additional reason that the rejection should be reversed, as described above in subsection 2, the combination of Rune, Melpignano and Virtanen is not proper. Therefore, the rejection of claim 1 based on this combination should be reversed.

The rejections of dependent claims 2, 3, 8 and 15 should be reversed for the same reasons. Claims 2 and 3 depend directly from claim 1 and incorporate all of the limitations of those claims.

Dependent claims 8 and 15, though they depend from different independent claims, were rejected for the same reasons as claim 1. Thus, the rejections of claims 2, 3, 8 and 15 also should be reversed.

4. Claims 7, 11 and 12

The rejection of independent claim 7 should be reversed because claim 7 recites multiple limitations not present in the combination of Rune, Melpignano and Virtanen. Claim 7 recites “updating a page scan cache with a corresponding entry in response to an attempt to connect to a remote device,” and “in response to a request for the list, forming the list of visible remote devices by combining at least a portion of the page scan cache with the inquiry scan cache.” Neither of these limitations is met by the combination of Rune, Melpignano and Virtanen.

As described above in subsection 1, none of the cited references describes a page scan cache. The references also do not describe updating such a cache in response to an attempt to connect to a remote device. Accordingly, the references, even if combined, would not meet the limitation of claim 7 that recites “updating a page scan cache with a corresponding entry in response to an attempt to connect to a remote device.”

Further, the references, even if combined, do not describe “in response to a request for the list, forming the list of visible remote devices by combining at least a portion of the page scan cache with the inquiry scan cache,” as claimed. Though the Examiner appears to assert that this limitation is met by using a name from a telephone directory as described in Virtanen, that interpretation of the references is not proper.

First, as detailed above in subsection 3, this interpretation results in an inconsistent interpretation of the “page scan cache” in different clauses in the claim. Such an interpretation is not reasonable and is therefore improper, providing a further reason that the rejection should be reversed.

A second flaw in the application of Virtanen is that the telephone directory of Virtanen is not used to form a list as claimed. The claim recites: “in response to a request for the list, forming the list of visible remote devices by combining at least a portion of the page scan cache with the inquiry scan cache.” Yet, it is apparent from a comparison of Figures 5A and 5B of Virtanen that the telephone directory of Virtanen is used to substitute names identifying devices on a list. The list is not augmented or otherwise changed -- the list contains the same devices both before and after the name substitution. Thus, it is unreasonable to say that the list is formed “by combining at least a portion of the page scan cache with the inquiry scan cache,” as claimed.

Additionally, there is no reasonable interpretation of the references under which the inquiry scan cache is both updated “prior to receipt of a request for the list of visible remote devices” and the list is formed “in response to a request for the list...,” as claimed. As understood, the rejection equates a substitution of names from a telephone directory in the results of an inquiry with forming the list. However, there is no indication in the references of a request that triggers that substitution. Further, even if there were such a request, it would not occur in the order required by the claim. The claim language implies an ordering of events, with an inquiry scan for which results are cached first with formation of a list coming later. A request occurs between these two events. Because Virtanen appears to describe a single operation of an inquiry and substituting names in a list, any request would not occur between these two events, as would be required to meet the limitations of the claim. For this additional reason, the cited references do not meet all the limitations of claim 7, and the rejection should be reversed.

As an additional reason that the rejection should be reversed, as described above in subsection 2, the combination of Rune, Melpignano and Virtanen is not proper. Therefore, the rejection of claim 7 based on this combination should be reversed.

Claims 11 and 12 depend from claim 7 and incorporate all of the limitations of that claim. The rejections of claim 11 and 12 should be reversed for at least the same reasons as the rejection of claim 7.

5. Claim 14

The rejection of independent claim 14 should be reversed because claim 14 recites multiple limitations not present in the combination of Rune, Melpignano and Virtanen. Claim 14 recites “updating a page scan cache with a corresponding entry in response to an attempt to connect to a remote device,” and “forming a list of visible remote Bluetooth devices comprising a combination of entries from the inquiry scan cache and the page scan cache.” Neither of these limitations is met by the combination of Rune, Melpignano and Virtanen.

As described above in subsection 1, none of the cited references describes a page scan cache. The references also do not describe updating such a cache in response to an attempt to connect to a remote device. Accordingly, the references, even if combined would not meet the limitation of claim 14 that recites “updating a page scan cache with a corresponding entry in response to an attempt to connect to a remote device.”

Further, the references, even if combined, do not describe “forming a list of visible remote Bluetooth devices comprising a combination of entries from the inquiry scan cache and the page scan cache.” Though the Examiner appears to assert that this limitation is met by using a name from a telephone directory as described in Virtanen, that interpretation of the references is not proper.

First, as detailed above in subsection 3, this interpretation results in an inconsistent interpretation of the “page scan cache” in different clauses in the claim. Such an interpretation is not reasonable and is therefore improper, providing a further reason that the rejection should be reversed.

A second flaw in the application of Virtanen is that the telephone directory of Virtanen is not used to form a list as claimed. The claim recites: “forming a list of visible remote Bluetooth devices comprising a combination of entries from the inquiry scan cache and the page scan cache.” Yet, it is apparent from a comparison of Figures 5A and 5B of Virtanen that the telephone directory of Virtanen is used to substitute names identifying devices on a list. The list is not augmented or

otherwise changed -- the list contains the same devices both before and after the name substitution. Thus, it is unreasonable to say that the list is formed “by combining at least a portion of the page scan cache with the inquiry scan cache,” as claimed. For this additional reason, the cited references do not meet all the limitations of the claim 14, and the rejection should be reversed.

As an additional reason that the rejection should be reversed, as described above in subsection 2, the combination of Rune, Melpignano and Virtanen is not proper. Therefore, the rejection of claim 14 based on this combination should be reversed.

6. Claims 18-21

The rejection of claim 18 should be reversed because independent claim 18 recites at least two limitations not met by the combination of references. First, the claim recites “a page scan cache that is refreshed by way of an attempt to connect to the remote Bluetooth device.” The claim further recites “a list of visible remote Bluetooth devices comprising entries in the inquiry scan cache, concatenated with each entry in the page scan cache that the local Bluetooth device successfully contacts by way of a page scan.” Neither of these limitations is met by the combination of Rune, Melpignano and Virtanen.

As described in subsection 1 above, none of the references describes a page scan cache. Further, none of the cited references describes a page scan cache “that is refreshed by way of an attempt to connect to at least one remote device.” Though the Examiner asserts that Rune teaches such a cache and that Melpignano teaches refreshing the cache by way of an attempt to connect to at least one remote device, as detailed in subsection 1, those references provide no such teaching. Accordingly, even if Rune, Melpignano and Virtanen were combined, the combination would not meet this limitation of claim 18.

Further, the references, whether considered alone or in combination, do not describe “a list of visible remote Bluetooth devices comprising entries in the inquiry scan cache, concatenated with each entry in the page scan cache that the local Bluetooth device successfully contacts by way of a page scan.” Though the Examiner appears to assert that this limitation is met by using a name

from a telephone directory as described in Virtanen, that interpretation of the references is not proper.

First, as detailed above in subsection 3, this interpretation results in an inconsistent interpretation of the “page scan cache” in different clauses in the claim. Such an interpretation is not reasonable and is therefore improper, providing a further reason that the rejection should be reversed.

A second flaw in the application of Virtanen is that the telephone directory of Virtanen is not used to form a list as claimed. The claim recites: “a list of visible remote Bluetooth devices comprising entries in the inquiry scan cache, concatenated with each entry in the page scan cache that the local Bluetooth device successfully contacts by way of a page scan.” Yet, it is apparent from a comparison of Figures 5A and 5B of Virtanen that the telephone directory of Virtanen is used to substitute names identifying devices on a list. The list is not augmented or otherwise changed -- the list contains the same devices both before and after the name substitution. Thus, it is unreasonable to say that the list includes “entries in the inquiry scan cache, concatenated with each entry in the page scan cache...,” as claimed. In short, the reference shows no concatenation, as claimed.

Additionally, there is no indication in Virtanen of an attempt made to contact entries in the telephone directory by way of a page scan. Thus, there is no basis to assert that the combination of references meets the limitation that recites “...each entry in the page scan cache that the local Bluetooth device successfully contacts by way of a page scan,” as claimed.

As an additional reason that the rejection should be reversed, as described above in subsection 2, the combination of Rune, Melpignano and Virtanen is not proper. Therefore, the rejection of claim 18 based on this combination should be reversed.

The rejections of dependent claims 19-21 should be reversed for the same reasons. Claims 19-21 depend from claim 18 and incorporate all of the limitations of that claim. Thus, the rejections of claims 19-21 also should be reversed for the same reasons as the rejection of claim 18.

7. Claim 4

The rejection of claim 4 should be reversed because the references, even in combined, do not teach all limitations of claim 4. Claim 4 depends from claim 1 and the rejection of claim 4 should be reversed for at least the same reasons as the rejection of claim 1.

In addition, claim 4 further recites “an automatic configuration service component that polls for the list of visible remote devices and the page scan is performed in response to the configuration service polling for the list.” The Examiner asserts that this additional limitation is met in Rune by paragraph 37. Though the cited passage describes a “poll packet,” that does not justify the assertion that the reference teaches the additional limitations added by claim 4.

For example, claim 4 recites “an automatic configuration service component that polls for the list of visible remote devices.” In contrast, paragraph 37 of Rune describes a master device polling a slave device. Further, claim 4 recites that “the page scan is performed in response to the configuration service polling for the list.” In contrast, paragraph 37 of Rune describes that the slave unit responds to the polling packet by providing link management protocol data, not by performing a page scan.

Accordingly, Rune does not teach the additional limitations of claim 4 and the assertion to the contrary is an error. Because the rejection of claim 4 is premised on this erroneous interpretation of Rune, the rejection should be reversed.

8. Claim 5

Claim 5 depends from claim 1 and the rejection of claim 5 should be reversed for at least the same reasons as the rejection of claim 1. In addition, claim 5 recites as an additional limitation that “the page scan cache holds a finite number of entries and is associated with an expiration policy.” Neither Rune, Melpignano nor Virtanen describes a page scan cache. Accordingly, the assertion that the references teach an expiration policy for a page scan cache is an error.

The Examiner asserts that Rune discloses at paragraph 37 both that the page scan cache holds a finite number of entries and that it is associated with an expiration policy. However, there is no basis for this assertion. That passage describes a master-slave switch procedure and is unrelated to either a page scan cache or an expiration policy associated with such a cache, and the Examiner's assertion to the contrary is an error. Because the rejection of claim 5 is premised upon an erroneous interpretation of the reference, the rejection of claim 5 should be reversed.

9. Claims 6, 10 and 17

Each of claims 6, 10 and 17 depends from an independent claim that recites limitations not met by the combination of Rune, Melpignano and Virtanen. Accordingly, for at least the reasons given above in conjunction with their respective independent claims, the rejections of claims 6, 10 and 17 should be reversed.

In addition, each of claims 6, 10 and 17 recites a further limitation not shown or suggested in the references, providing a further reason that the rejection should be reversed.

Claim 6 recites "the inquiry scan cache is additionally updated by way of an attempt by a remote Bluetooth device to connect to the local device." Though the Examiner asserts that this limitation is taught by paragraphs 31 and 37 of Rune, there is no basis for this assertion. Though paragraph 31 mentions an inquiry scan, it makes no mention of an inquiry scan cache. Further, there is no mention that a part of the data in an inquiry scan cache is based on an attempt by a remote device to connect to the local device.

Rather, paragraph 31 describes differences between the architecture of Rune and a conventional Bluetooth network access point. That passage describes separate inquire scan, page scan and traffic processing transceivers.

Paragraph 37 is similarly devoid of any teaching of updating an inquiry scan cache by way of an attempt by a remote Bluetooth device to connect to the local device. That passage relates

to a master-slave switch procedure rather than updating of an inquiry scan cache. The Examiner's assertion to the contrary is an error.

Because the rejection of claim 6 is premised on an erroneous interpretation of the references, the rejection should be reversed.

Claims 10 and 17 recite a limitation similar to the added limitation of claim 6, and those rejections should be reversed for the reasons given above. In rejecting claims 10 and 17, the Examiner also cites to paragraph 33 of Rune. Though this passage mentions an inquiry scan transceiver, it does not provide any indication that, if a remote Bluetooth device attempts to connect to the local Bluetooth device, the transceiver adds a remote device to the results of the inquiry scan or otherwise performs in a way that could reasonably be regarded as meeting the limitations added by these claims. Thus, the references, even if combined, do not meet all limitations of claims 10 and 17, and the rejection of these claims should be reversed.

10. Claims 9 and 16

Each of claims 9 and 16 depends from an independent claim that recites limitations not met by the combination of Rune, Melpignano and Virtanen. Accordingly, for at least the reasons given above in conjunction with their respective independent claims, the rejections of claims 9 and 16 should be reversed.

In addition, each of claims 9 and 16 recites a further limitation not shown or suggested in the references, providing a further reason that the rejection should be reversed.

Claim 9 recites:

setting an expiration time for the entry;
if the periodic inquiry scan does not reveal the entry,
reducing the expiration time; and
if the expiration time has occurred, removing the entry
from the page scan cache.

As noted in subsection 1 above, none of the references teaches a page scan cache. It follows that these limitations of claim 9, which relate to the expiration policy implemented by such a cache, are described in the references either. Rather, these added limitations highlight further differences between the claims and the cited references.

Though the Examiner asserts that these limitations are met by paragraphs 11 and 37 of Rune, there is no basis for such an assertion. Paragraph 11 relates to decreasing the time it takes for a roaming device to find a network access point. The paragraph mentions increasing the amount of time a network access point spends in an inquiry scan state, but makes no mention of page scanning, a page scanning cache or otherwise managing a page scan cache as recited in the claim.

Paragraph 37 is similarly devoid of any teaching of the claimed limitations. That passage relates to a master-slave switch procedure rather than updating of an inquiry scan cache. The Examiner's assertion to the contrary is an error.

Because the rejection of claim 9 is premised on an erroneous interpretation of Rune, the rejection should be reversed.

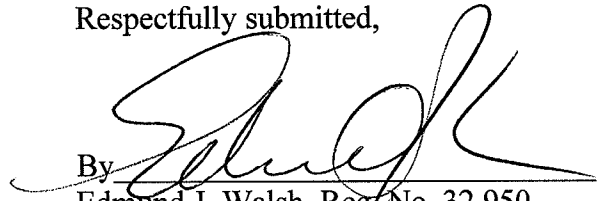
Claim 16 is rejected under the same rationale as claim 9. Because that rationale is faulty for the reasons detailed above, the rejection of claim 16 should also be reversed.

C. Conclusion

For the foregoing reasons, all of the claims on appeal are not obvious in light of Rune, Melpignano and Virtanen. Accordingly, the rejections of all claims should be reversed.

Dated: October 14, 2008

Respectfully submitted,

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VIII. CLAIMS APPENDIX

Claims Involved in the Appeal of Application Serial No. 10/724,843

1. A system for discovering and connecting to a remote device by a local device, the system comprising tangible computer-readable media having:
 - an inquiry scan cache that is refreshed by a periodic inquiry scan;
 - a page scan cache that is refreshed by way of an attempt to connect to at least one remote device; and
 - a list of visible remote devices comprising entries in the inquiry scan cache, concatenated with each entry in the page scan cache that the local device successfully contacts by way of a page scan.
2. The system of claim 1 wherein the remote device provides a Network Access Point (NAP) service.
3. The system of claim 1 wherein the remote device provides a Group Ad-hoc Network (GN) service.
4. The system of claim 1, further comprising an automatic configuration service component that polls for the list of visible remote devices and the page scan is performed in response to the configuration service polling for the list.
5. The system of claim 1 wherein the page scan cache holds a finite number of entries and is associated with an expiration policy.
6. The system of claim 1 wherein the inquiry scan cache is additionally updated by way of an attempt by a remote Bluetooth device to connect to the local device.

7. A method for discovering and connecting to a remote device by a local device based on a list of visible remote devices, the method comprising:

prior to receipt of a request for the list of visible remote devices:

updating an inquiry scan cache by way of a periodic inquiry scan;

updating a page scan cache with a corresponding entry in response to an attempt to connect to a remote device; and

in response to a request for the list, forming the list of visible remote devices by combining at least a portion of the page scan cache with the inquiry scan cache.

8. The method of claim 7 wherein forming the list of visible remote devices further comprises:

for each entry in the page scan cache, performing a page scan, and, if the page scan was successful, adding the entry to the list of visible remote devices.

9. The method of claim 7 wherein the page scan cache holds a finite number of entries, the method further comprising, for each entry added to the page scan cache:

setting an expiration time for the entry;

if the periodic inquiry scan does not reveal the entry, reducing the expiration time; and

if the expiration time has occurred, removing the entry from the page scan cache.

10. The method of claim 7, further comprising:

if a remote device attempts to connect to the local device, adding an entry for the remote device to the inquiry scan cache.

11. The method of claim 7 wherein the remote device provides a Bluetooth NAP service.

12. The method of claim 7 wherein the remote device provides a Bluetooth GN service.

13. The method of claim 7 wherein forming a list of visible remote devices is in response to polling by an automatic configuration service, and the method further comprises:

comparing, within the automatic configuration service, the list of visible remote devices to a list of preferred network devices to identify a preferred network device that is visible.

14. A computer-readable medium storing instructions implementing a method for discovering and connecting to a remote Bluetooth device by a local Bluetooth device, the method comprising:

updating an inquiry scan cache by way of a periodic inquiry scan;

in response to an attempt is made to connect to the remote Bluetooth device, updating a page scan cache with a corresponding entry; and

forming a list of visible remote Bluetooth devices comprising a combination of entries from the inquiry scan cache and the page scan cache.

15. The computer-readable medium of claim 14 wherein forming the list of visible remote Bluetooth devices further comprises:

for each entry in the page scan cache, performing a page scan, and, if the page scan was successful, adding the entry to the list of visible remote Bluetooth devices; and

concatenating entries in the inquiry scan cache to the list of visible remote Bluetooth devices.

16. The computer-readable medium of claim 14, further comprising, for each entry added to the page scan cache:

setting an expiration time for the entry;

if the periodic inquiry scan does not reveal the entry, reducing the expiration time; and

if the expiration time has occurred, removing the entry from the page scan cache.

17. The computer-readable medium of claim 14, further comprising:

if a remote Bluetooth device attempts to connect to the local Bluetooth device, adding an entry for the remote Bluetooth device to the inquiry scan cache.

18. Computer-readable media storing one or more modules implementing a system for execution on a local Bluetooth device for discovering and connecting to a remote Bluetooth device, comprising:

an inquiry scan cache that is refreshed by an attempt to connect to the local Bluetooth device by the remote Bluetooth device;

a page scan cache that is refreshed by way of an attempt to connect to the remote Bluetooth device; and

a list of visible remote Bluetooth devices comprising entries in the inquiry scan cache, concatenated with each entry in the page scan cache that the local Bluetooth device successfully contacts by way of a page scan.

19. The computer-readable media of claim 18, wherein the local Bluetooth device comprises an operating system adapted to execute software components in either a user-mode or a kernel-mode, and the computer-readable medium further comprises a user-mode Bluetooth PAN service component.

20. The computer-readable media of claim 19, wherein the local Bluetooth device comprises an operating system adapted to execute software components in either a user-mode or a kernel-mode, and the computer-readable medium further comprises a kernel-mode Bluetooth PAN driver component.

21. The computer-readable media of claim 18, further comprising an automatic configuration service component that polls for the list of visible remote Bluetooth devices.

IX. EVIDENCE APPENDIX

No evidence pursuant to §§ 1.130, 1.131, or 1.132 entered by or relied upon by the Examiner is being submitted.

X. RELATED PROCEEDINGS APPENDIX

No related proceedings are referenced in II. above and no copies of decisions in related proceedings are being submitted.